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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,887	03/08/2001	Seiji Sano	201066US2	6821
22850	7590	11/26/2004		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER	RUTHKOSKY, MARK
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/800,887	SANO ET AL.	
	<b>Examiner</b> Mark Ruthkosky	<b>Art Unit</b> 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 17 November 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 8-11,23,25 and 26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 8-11,23,25 and 26 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date. _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### *Information Disclosure Statement*

The examiner has requested the disclosure of any prior art documents or search reports related to the European Patent Application 01105662.9, which is publication EP 1132986 A2. The document is in the same patent family as the instant application and corresponding priority document. The EPO document was printed without a search report and no search report was made available to the examiner.

### *Claim Rejections - 35 USC § 112*

The rejection of claims 8-12 and 23 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been overcome by the applicant's amendment.

Claim 8 states that a claimed element of the fuel cell system is an operation control means for controlling an operating state of the fuel cell such that a water control ratio, which is equal to the relative humidity of the exhaust gas when the fuel cell has not been humidified, is within a predetermined range. The water quantity control ratio is defined on page 3 (last paragraph) of the specification to be the ratio of the quantity of water produced by the fuel cell to the saturated water vapor content in the exhaust gas of the fuel cell. The relative humidity is defined on page 5 (line17) as the ratio of water vapor content to the saturated water vapor content in the exhaust gas at the temperature of the exhaust gas. Thus, the water quantity control ratio is simply equal to the relative humidity of the exhaust gas.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 10 stats that the water quantity control ratio is in the range of 0.7 to 1.4. As the water quantity control ratio is equal to the relative humidity of the exhaust gas when the fuel cell has not been humidified, the ratio cannot be higher than 100 percent. Thus, it is unclear how the ratio can be greater than 100%, which is a ratio value of 1.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 8-11 and 23 stand rejected under 35 U.S.C. 102(b) as being anticipated by Tsukui et al. (JP 362176064.) Newly added claims 25-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsukui et al. (JP 362176064.)

The instant claims are to a polymer electrolyte fuel cell system comprising a relative humidity detection means for detecting a relative humidity of an exhaust gas of a fuel cell and an operation control means for controlling an operating state of the fuel cell such that a water quantity control ratio, which is equal to the relative humidity of the exhaust gas when the fuel

cell has not been humidified, is within a predetermined range; and a condition alteration means for altering at least one condition of a flow rate of the exhaust gas, a pressure of the exhaust gas, a temperature of the exhaust gas, and an output current of the fuel cell as the operating state of the fuel cell, wherein the operation control means controls the condition alteration means which alters at least one condition of the flow rate of the exhaust gas, the pressure of the exhaust gas, the temperature of the exhaust gas, and the output current of the fuel cell such that the water quantity control ratio is within the predetermined range.

Tsukui et al. (JP 362176064) teaches a polymer electrolyte fuel cell system comprising a relative humidity detection means in the exhaust gas of a fuel cell. A signal from a sensor is transmitted to an operation control means for controlling an operating state of the fuel cell. The supply amount of the oxidizing gas is controlled by a condition altering means according to the humidity of the exhaust gas. A water control ratio of the oxidizing gas is therefore equivalent to the relative humidity as they are directly related. The relative humidity is always in the range of 70-95%, which is within a predetermined range. The flow rate is noted as a control variable that is equivalent to the supply amount. As the variables of the ratio are indefinite, it is taken that the flow supply amount and the relative humidity will provide the proper relationship to give a value of one. The exhaust gas of the fuel cell is defined in the specification to mean both the exhaust gas of the cathode side and the exhaust gas of the anode side (page 5, line 20.) From this, it is inherent that supply amount of the oxidizing gas will directly control the flow rate and pressure of the exhaust gas from the cathode side of the fuel cell. Thus, the claims are anticipated.

It is noted that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably

distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The use of the means in the claims does not result in a structural difference between the claimed invention and the prior art, however, the claims are anticipated as both the intended use and structural limitations are met by the reference.

The reference does not teach that the operation control means controls the operating state of the fuel cell such that the water quantity control ratio becomes equal to a value of 1. It is again noted that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The intended use of the means in the claims does not result in a structural difference between the claimed invention and the prior art.

#### *Response to Arguments*

Applicant's arguments filed 11/17/2004 have been fully considered but they are not persuasive. The applicant argues that the reference does not teach that a condition of the exhaust gas or the output current of the fuel cell is controlled such that the humidity of the exhaust gas is within a specified range. The exhaust gas of the fuel cell is defined in the specification to mean both the exhaust gas of the cathode side and the exhaust gas of the anode side (page 5, line 20.) From this, it is inherent that supply amount of the oxidizing gas will directly control the flow rate and pressure of the exhaust gas, from the cathode side of the fuel cell as well as the output current of the fuel cell. It is again noted that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in

order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The intended use of the means in the claims does not result in a structural difference between the claimed invention and the prior art.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Examiner Correspondence***

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1193. Any inquiry concerning this communication or earlier communications from the examiner should be directed

to Mark Ruthkosky whose telephone number is 703-305-0587. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:00.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 703-308-2383.

The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Mark Ruthkosky  
Primary Patent Examiner  
Art Unit 1745

*Mark Ruthkosky*  
11/24/04